

An Overview of Bishop's Geography and Climate

Bishop is located in southeast California in Inyo County on the floor of the Owens Valley. The Owens Valley is orientated north-northwest to the south-southeast. At the point Bishop is located at, the Owens Valley is 12 miles wide, level, and semi-arid and at an elevation of roughly 4,100 to 4,200 feet above sea level. Peaks of the 12,000 to 14,500 foot Sierra Nevada are 25 miles to the west, and the 12,000 to 14,000 foot White Mountains are 10 miles to the east. The northern end of the valley is partly cut off by 6,000 to 8,000 foot mountains that are about 45 miles distant. The southern end of the valley makes a gradual descent to the Mojave Desert about 150 miles away. The present official climate station for Bishop is located at the Eastern Sierra Regional Airport about two and a half miles east of the town and about 1 mile west of the Owens River.

The dramatic drop in elevation, primarily from the Sierra Nevada to the valley floor, largely drives the weather experienced in the Owens Valley. The Sierra Nevada largely serves as a barrier to moisture moving in from the Pacific creating a "rain shadow" effect on the valley. Thus, many storms that move in from the Pacific are marked by just clouds and no precipitation. The precipitation that does fall from the passage of cold fronts and other winter disturbances is usually light, although periods of heavier intensity do occur usually with atmospheric river type events. Most of the precipitation to fall at Bishop occurs between November and April. Winters with heavier precipitation often will see dry lakes and creeks fill with water. Snow typically occurs several times each winter on the Owens Valley floor; however, amounts from a single storm exceeding a foot are unusual.

Gusty winds occur in every month of the year. From the fall through the spring, when strong westerly winds aloft flow over the Sierra Nevada ahead of incoming storm systems they often result in wind being forced down the eastern slopes of the Sierra generating powerful westerly wind gusts. These gusts are most noted on the western side of the valley, with the occurrence often less at the Bishop climate station. At times, strong northerly winds blow, especially behind the passage of cold fronts during the months of February, March and April. East and west winds frequently give pronounced foehn effects and turbulence. During the summer and autumn, the heating difference between the Owens Valley and Mojave Desert causes an early morning and late evening northerly wind as air flows from higher pressure over the Owens Valley towards lower pressure over the Mojave Desert. Conversely, in the heat of the afternoon, it causes a southerly wind that is occasionally strong. Bishop often records very large diurnal swings in temperature. Differences of over 50 degrees between the daytime high and the nighttime low have been observed. The hottest summer days at Bishop feature highs in the triple digits. In the winter, the coldest mornings feature low temperatures in the teens. Being in the lee of the Sierra, Bishop is not as protected from colder air seeping out of the Great Basin as areas just to the west of the Sierra, and as a result at least every other winter low temperatures drop

into the single digits. Low temperatures below zero occur with the most extreme cold outbreaks.

In the summer months, occasional pushes of moisture into the region from the south result in thunderstorms developing over the Sierra Nevada and White Mountains. On days when the flow in the atmosphere can push these storms into the Owens Valley they bring gusty winds and sometimes rain. Otherwise the warmer season months feature abundant sunshine.